

## ABSTRACT OF THE DISCLOSURE

A 2D look-up table is created, where the 2D dimensions of the look-up table enclose the discrete space occupied by the angle spanned by the ultrasound vector data to be scan-converted. Each discrete  $i,j$  entry in the look-up table comprises 4 values: two fixed-point values (32-bit signed integer with 15 bits of fractional precision), one Boolean Flag, and one Integer Sum. The look-up table is used to convert  $(Y,Z)$  coordinates of the destination Cartesian volume to  $(R, \text{Theta})$  coordinates of the source Cylindrical volume.  $(Y,Z)$  coordinates are used to access the  $i,j$  elements of the look-up table. The 2D look-up table is used for volume rendering, multi-planar reformatting or other imaging from data acquired in one format and output in another format. An additional look-up table may be used for further scan conversion along different dimensions, such as one LUT for scan conversion within each acquisition plane and another LUT for scan conversion across multiple acquisition planes.